

BLUEBIRD DAM
Rocky Mountain National Park
On Ouzel Creek, 7 miles west of Allenspark
Allenspark Vicinity
Boulder County
Colorado

HAER NO. CO-33

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Rocky Mountain Regional Office
National Park Service
P.O. Box 25287
Denver, Colorado 80225-0287

HISTORIC AMERICAN ENGINEERING RECORD
BLUEBIRD DAM

I. INTRODUCTION

Location: Rocky Mountain National Park
On Ouzel Creek, 7 miles west of Allenspark
Allenspark Vicinity
Boulder County
Colorado

Quad: Allenspark, Colorado 7.5 min.

UTM ZONE 13 E 444520 N 4449120

Date of Construction: 1923

Present Owner: Rocky Mountain National Park
National Park Service

Present Use: Reservoir and dam are not in use.

Significance: The Bluebird Dam, completed ca. 1923, is locally significant to Boulder County as an intact example of an early twentieth century, and relatively uncommon, arch concrete dam. The dam documents an important engineering achievement in that its completion represented an early successful solution to the logistical difficulty of high altitude dam construction in the region.

Bluebird Dam is a concrete arch structure 146.7 feet long, abutting granite rock on the north side and a 49.5 foot high concrete abutment on the south side. The structural height of the dam is approximately 55 feet. The dam is at a mean elevation of 10,978 feet.

Historians: Mary Shivers Culpin, and
John W. Jenkins, December 1987

II. History

The construction of Bluebird Dam is typical of water projects in Colorado including the Front Range counties of Boulder and Larimer. The relationship of the construction of Bluebird Dam to the development and settlement of a locality or community is also typical of similar Colorado projects.

In an area where rainfall is usually less than sixteen inches per year, it did not take Euro-American settlers long to develop irrigation systems. As early as the 1860s, the building of reservoirs and diversion canals were standard practice in Colorado. However, in the Front Range of northern Colorado, one of the most significant early irrigation projects was the method developed by the colony system. Initially, people interested in farming in Colorado bought membership in a colony. Large tracts of land were purchased and irrigation ditches were constructed with members' money. Each member received a plot of land for a house in the colony and a tract of land for farming in the agricultural area. Thus, a large area organized by a colony had a developed irrigation system. The founding of Union Colony (Greeley) in 1869 was followed by the Chicago-Colorado Colony (Longmont) on the St. Vrain River in 1871. In 1873 a colony was founded on the Cache La Poudre River at the site of Fort Collins. The organizers of the colony system realized the need for irrigation and by the mid-1870s, these northern Colorado communities were surrounded by fertile, irrigated fields.¹

As more people settled in the state, particularly in eastern Colorado, they demanded water laws tailored to the arid West. With the adoption of its constitution in 1876, Colorado became the first state to abandon the old water law system, based on the Riparian System of English Common Law. The constitution and subsequent laws created a new Colorado System of water rights, which became a model for the western states. Under this new system, a person can use water even if the river is not on the user's property. Thus, water can be carried from its source using ditches. Water rights are appropriated on a first come, first serve basis, with earlier claims having precedence. The new water law also stated that certain uses of water had greater priority over other uses, in order of domestic use, agricultural use, and manufacturing use. The state is divided into seventy water districts corresponding to geographical watershed.

¹ Patrick McKnight, "The Water Rights of Rocky Mountain National Park," (unpublished manuscript, photocopy at National Park Service, Rocky Mountain Regional Office, Library, Denver, 1983), 4.

Bluebird Dam is in Water District #5, the St. Vrain Creek drainage.

In 1891, the Forest Reserve Act empowered the President of the United States to create forest preserves which would provide protection for the watershed. The same year, 1891, Congress passed an act which permitted the construction of reservoirs on the public domain, so farmers from Longmont and Lyons looked to mountain drainages for irrigation water, specifically the Wild Basin area on the St. Vrain. In 1905, the U. S. Forest Service began administering the St. Vrain, Big Thompson, and Cache la Poudre watersheds. Since dam construction was allowed on forest reserves, water projects continued. Concurrently, northern Colorado farmers changed from growing grain crops to growing vegetable crops and sugar beets which required more water, particularly in the growing season. By 1911, Larimer County had the "best and largest storage system in the State."² There were twenty-eight reservoirs in the Big and Little Thompson Valleys. By 1915, when Rocky Mountain National Park was established, nineteen reservoirs and three water diversion projects had been approved within its borders.³

The first filing for Bluebird Dam was made in 1902 by Mrs. Emma Arbuckle, her son Frank, and the caretaker for her ranch resort, Jabez Billings. Her husband, Frank P. Arbuckle, had been a prominent Denver businessman and Democratic Party leader. At the time of his death in 1896, the couple ran a resort on the St. Vrain River, six miles north of the town of Lyons.

After a dry summer in 1902, Emma Arbuckle filed on five reservoirs in Wild Basin. Only Bluebird Dam, also known as Billings and Arbuckle #2, and Pear Lake Dam also called Arbuckle #4 were built. Two years later, Emma, her son, and Billings sold the reservoirs to a group of Longmont businessmen, The Arbuckle Reservoir Company.⁴ In this same year, 1904, the Arbuckle Reservoir Company commissioned the construction of a nine-foot earthen and rock dam at Bluebird Reservoir.⁵ The Bluebird Dam is

² Ansel Watrous, *History of Larimer County, Colorado* (Fort Collins: The Courier Printing and Publishing Company, 1911), 132.

³ McKnight, 9.

⁴ Louise Ward Arps and Elinor Eppich Kingery, *High Country Names Rocky Mountain Park* (Estes Park, Colorado: Rocky Mountain Nature Association, 1972), 33.

⁵ H. N. Wheeler, Forest Supervisor, to District Forester, 24 October 1913, on file at National Park Service, Rocky Mountain Regional Office, Denver.

located on Ouzel Creek, a branch of the North Fork of the St. Vrain Creek, which is approximately six and three-quarters miles west of Allenspark, Colorado. In 1913, the state engineer approved the plans for a concrete dam to replace the earthen dam, with an estimated cost of \$1,500.⁶ The three-year construction project started that summer. The survey crews:

packed in with two mules, . . . The rodman threw together a raft of sorts to measure the depth of the lake. The engineer in charge declined to board but the two boys put to sea, their soundings show a depth of 50 feet in one place. The country was so rough Neeley wore out three pairs of shoes in eight days, and came out in a September blizzard with wet, cold feet.⁷

The construction of the dam, located above timberline at about 11,000 feet above sea level, presented many problems for the contractor and the workers. The construction season was very short, usually mid-July to mid-September and quite often snow remained in spots. The freezing weather caused the mountain trails to be dangerous. All supplies had to be packed in by mule up mountainous trails for a distance of six miles. Each mule carried two bags of cement at a time. About 2,000 bags were used during each of the three years of construction. There was no sand source onsite, so the contractor crushed the abundant local granite as a substitute. It took the men three days to dismantle a rock crusher, drive the laden mules to camp and reassemble the machine. An old automobile engine, which was transported in the same manner, was used to power the rock crusher. All of the 1-inch twisted steel reinforcing bars were chained in bundles to an axle beam between two wagon wheels, one end left dragging on the ground. The driver balanced on the axle and urged four horses up the narrow trail.⁸ All other tools, lumber, and gasoline were transported using the mules. Some of the equipment remains onsite.

Different accounts state different completion dates, however, the engineer in charge of construction wrote in an April 1923 article that he expected to finish the work that year.⁹

⁶ Arbuckle #2 Water file, Natural Resources Division, State of Colorado, Denver.

⁷ Arps and Kingery, 33.

⁸ Arps and Kingery, 33.

⁹ L. H. Dreterich, "Materials for Dam Transported by Burros," *Engineering News-Record*, 12 April 1923.

The Bluebird Dam is a concrete arch structure 146.7 feet long. It abuts a granite rock wall on the north, and on the south a 49.5 foot high concrete abutment. The height of the dam is 55 feet.

In October 1933, the city of Longmont obtained ownership of the Bluebird Dam. The State of Colorado periodically conducted inspections of the dam in the 1950s, reporting its poor condition. Plans were made to repair the dam, however, these plans were never implemented. In 1967, the State of Colorado officially declared Bluebird Dam unsafe and unsuitable for its intended water storage function. Despite its unsafe condition, the dam was still used under partial water storage until 1974, when it was abandoned. Presently, there is no water in Bluebird reservoir since the dam and reservoir are not in use.

III. BIBLIOGRAPHY

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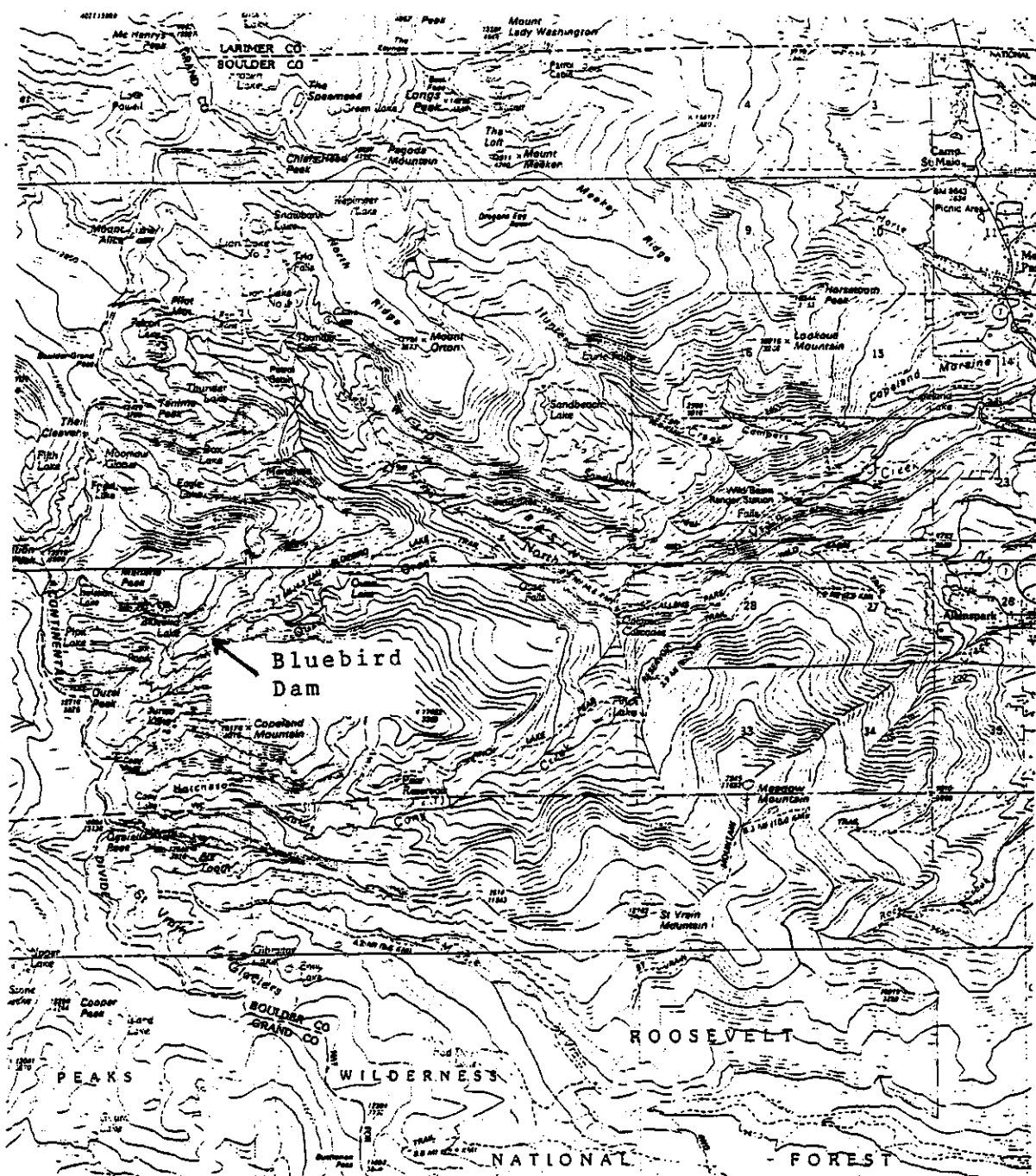
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Located Within the Boundary of Rocky Mountain National Park." National Park Service, 1982.

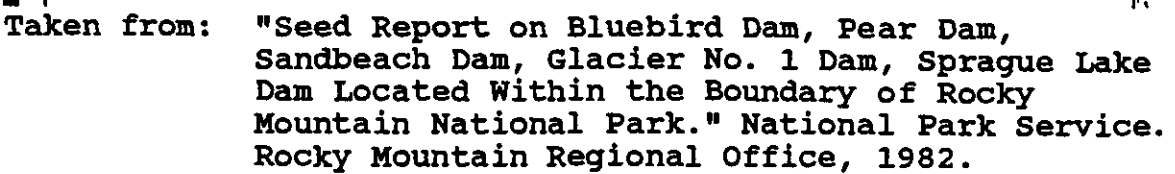
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Wheeler, H. N., Forest Supervisor, to District Forester. 24 October 1913. On file at National Park Service, Rocky Mountain Regional Office, Denver.

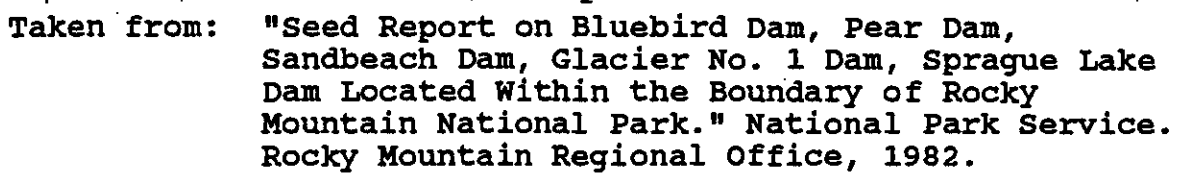


Taken from: Rocky Mountain National Park, Colorado,
Topographic Map. United States Department of
the Interior, Geological Survey, 1987.

Shir Naim E Shikata Seida no Haru no
R.E. Pichardsson Enigma.



DETAILS OF OUTLETS	
Sho. No. 2 on R. Side	Still in hands
M. E. Anderson	E. Anderson.



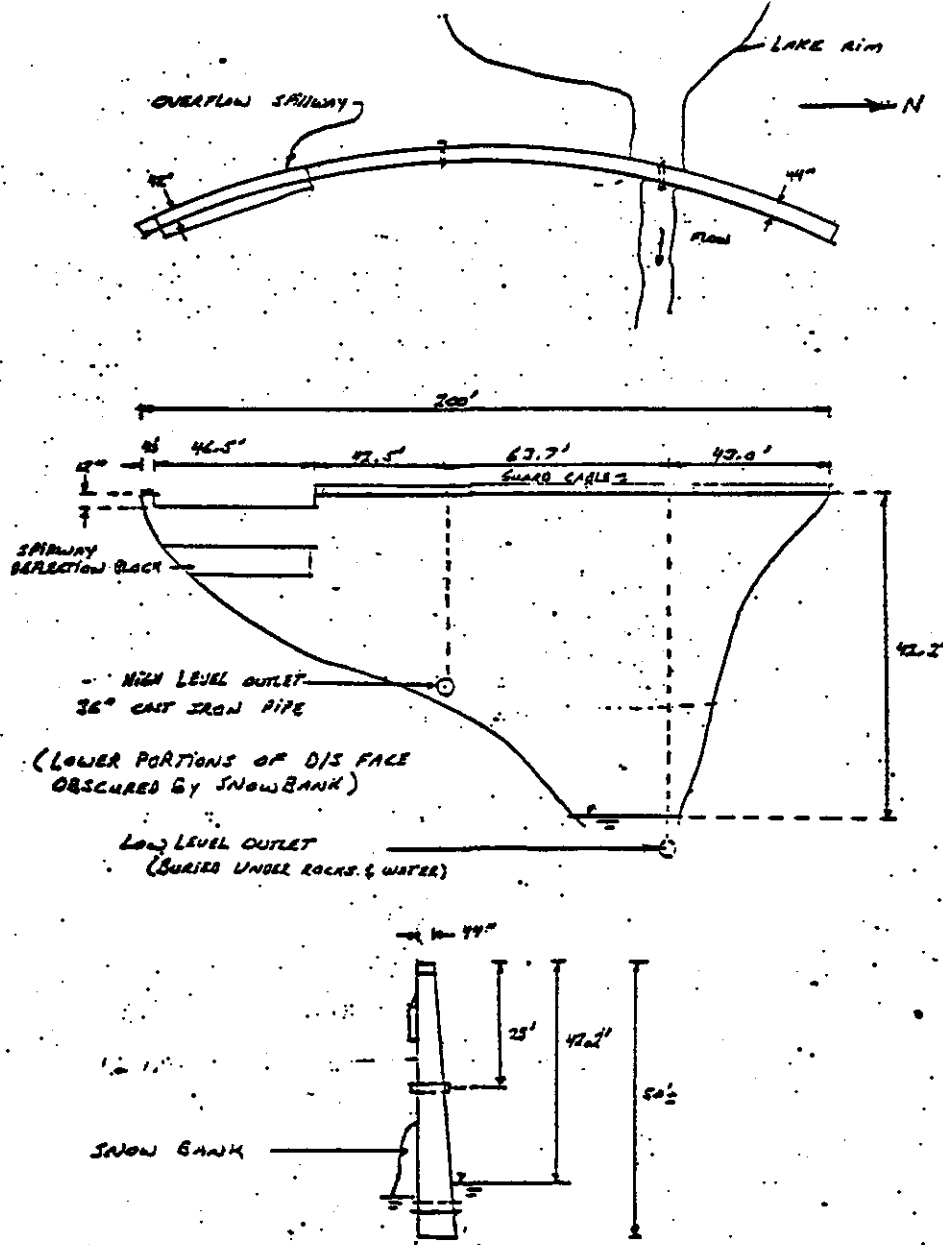
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HAER No. CO-33
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7-1884 (7-73)
Water and Power

COMPUTATION SHEET 1

PRELIMINARY

BY	DATE	PROJECT	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS		BLUEBIRD DAM - ROCKY MOUNTAIN NATIONAL PARK	
SKETCH & FIELD MEASUREMENTS (NOT TO SCALE)			



Taken from: "Seed Report on Bluebird Dam, Pear Dam, Sandbeach Dam, Glacier No. 1 Dam, Sprague Lake Dam Located Within the Boundary of Rocky Mountain National Park." National Park Service. Rocky Mountain Regional Office, 1982.